AMENDMENT TO CLAIMS

With respect to the above-identified Office Action, please amend the Claims as follows:

1. (Previously Presented) An inflatable heating device comprising:

a generally cylindrical body having an inner surface and an outer surface, said inner surface of said cylinderical body of the heating device defining a generally hollow inflation chamber, said body including a flexible matrix and a plurality of nonmetallic, electrically conductive fibers embedded within said flexible matrix, said flexible matrix being cured to a stable elastomeric state by electrical resistive heating of said fibers, said body being capable of expanding and returning to an original form, and electrical cable lines connecting the electrically conductive fibers in the generally cylindrical body to an electrical energy source for providing electrical energy to the electrically conductive fibers to resistively heat the electrically conductive fibers.

2. (Previously Presented) The inflatable heating device of claim 1 wherein said flexible matrix comprises fluorosilicone.

3. (Previously Presented) The inflatable heating device of c1aim 1 wherein said fibers are carbon fibers.

4. (Previously Presented) The inflatable heating device of claim 1 wherein said carbon fibers are an-angled at an angle of +/- 4.5° with respect to said longitudinal axis of said body.

5. (Previously Presented) The inflatable heating device of claim 4 wherein said carbon fibers are arranged in one of tows and bundles to provide approximately 50-90% coverage of said body.

6. (Previously Presented) The inflatable heating device of claim 1 wherein said carbon fibers are in the form of a non-woven tape.

7. (Withdrawn) A process of forming an inflatable heating device comprising the steps of applying a layer of uncured sheets of a fluorosilicone material to a mandrel;

winding a plurality of carbon fiber in a helix onto said fluorosilicone

material layer;

applying a layer of uncured sheets of fluorocarbon material over said carbon fibers;

applying a radially inward pressure to said fluorosilicone layer, carbon fibers and fluorocarbon layer; and

applying an electric current to said carbon fibers to resistively heat said carbon fibers to cure said fluorosilicone layer and said fluorocarbon layer to form a cured structure.

8. (Withdrawn) The process of claim 7 further comprising the steps of

removing said electric current from said carbon fibers;

removing said radially inward pressure from said fluorosilicone layer, carbon fibers and fluorocarbon layer;

allowing said cured structure to cool; and

removing said cured structure from said mandrel.

9. (Withdrawn) The process of claim 7 wherein said applying an electric current step comprises Resistively heating said carbon fibers to heat said fluorosilicone layer and said fluorocarbon layer to a temperature of approximately 300°F for approximately 45 minutes.

10. (Withdrawn) The process of claim 9 further comprising removing said fluorosilicone layer, carbon fibers and fluorocarbon layer from said mandrel, and heating said fluorosilicone layer, carbon fibers and fluorocarbon layer to a temperature greater than 300°F.

11. (Withdrawn) The process of claim 7 further comprising incorporating a layer of uncured silicon sheets in said cured structure.

12. (Amended) An apparatus for curing a heat cureable resin of a pre-preg repair material ~~supporting a heat curable resin~~ for in-situ repair of a conduit, comprising:

an elastomeric composite having a first end and a second end, wherein the composite includes a non-ferrous heating element disposed within a thermoset resin matrix;

a first end piece fixedly attached to the first end of the composite and having an air port for communication with a compressed air source, a vacuum port for communication with a vacuum supply source and at least one electrical cable port to convey electric current to the non-ferrous heating element from ~~for communication with~~ a power supply source; and

a second end piece fixedly attached to the second end of the composite, wherein the composite, the first end piece, and the second end piece form ~~an~~ a generally hollow inflation chamber.

13. (Original) The apparatus of Claim 12 wherein the thermoset resin of the elastomeric composite is selected from the group consisting of fluorocarbon and fluorosHicone.

14. (Original) The apparatus of Claim 12 wherein the heating element includes a plurality of braided fibers comprising of temperature tolerant fiber braids and electrically conductive fiber braids.

15. (Original) The apparatus of Claim 14 wherein the braided fibers interact to define a braid angle measure at +/- 45 degrees.

16. (Original) The apparatus of Claim 14 wherein the electrically conductive fiber braids arc carbon filaments.

17. Deleted

18. (Original) The apparatus of Claim 12 wherein the heating element includes a p1urcdity of wound fibers comprising of temperature tolerant fiber windings and electrically conducive fiber windings.

19. (Original) The apparatus of Claim 18 wherein the wound fibers interact to define and angle measure at +/- 45 degrees.

20. (Original) A method for repairing a damaged section of a conduit comprising the steps of:

providing an elastomeric composite having a first and second end, wherein the composite includes a heating e1ement disposed within a thermoset resin matrix;

fixedly attaching a first and second end piece respectively to the first and second ends of the composite, wherein the first end piece. the second end

piece, and the composite form a heating/inflation module;

removably attaching a pre-preg to an outer surface of the composite, wherein the pre-preg includes a structural fiber matrix supporting a heat curable resin;

positioning the module with the attached pre-preg into the conduit at a damaged location;

inflating the module to a predetermined internal air pressure to expand the composite and press the pre-preg against an inside surface of the conduit;

curing the resin of the pre-preg by causing an electrical current to flow in the heating element to resistively heat the module to a predetermined temperature; and

deflating the module and removing it from the conduit.

21. (Previously Presented) An inflatable heating device comprising:

a generally cylindrical body having an inner surface and an outer surface, said inner surface of said cylindrical body of the heating device defining a generally hollow inflation chamber, said body comprising a thermoset resin matrix and a plurality of carbon fibers embedded within said matrix, said carbon fibers being arranged helically and positioned at an angle of +/- 45 degrees with respect to the longitudinal axis of said body, said matrix being cured to a stable elastomeric state by electrical resistive heating of said carbon fibers, said body being capable of expanding and returning to an original form, and electrical cable lines connecting the carbon fibers in the general1y cylindrical body to an electrical energy source for providing electrical energy to the carbon fibers to resistively heat the carbon fibers.

22. (Twice Amended) A system for in-situ repair of a conduit, comprising:

an apparatus including an elastomeric composite having a first end and a second end, wherein the composite includes a non-ferrous heating element disposed within a thermoset resin matrix;

a first end piece fixedly attached to the first end of the composite and

having an air port for communication with a compressed air source, a vacuum port for communication with a vacuum supply source and at least one electrical cable port to convey electric current to the non-ferrous heating element from ~~for communication with~~ a power supply source;

a second end piece fixedly attached to the second end of the composite, wherein

the composite, the first end piece. and the second end piece form an inflation chamber; and,

a pre-preg removably attached to an outer surface of the composite of the apparatus, the pre-preg including a structural fiber matrix supporting a heat curable resin.

23. (Withdrawn) A method *for* in-situ repair of a conduit comprising:

providing a generally cylindrical body having an inner surface and an outer surface, said body containing a flexible elastomeric matrix and a plurality of nonmetallic conductive fibers 8JTanged helically about said body so as to expand and contract and contract with the application of air pressure and vacuum pressure to said inner surface of said body;

providing an electrical power source connected to said fibers;

resistively heating said fibers by the electrical power source to cure the elastomeric matrix of the cylindrical body;

providing a pre-preg removably attahced to an outer surface of said body; and

resistively heating said fibers by the electrical power source to cure the pre-preg.

24. (Withdrawn) The method of claim 23 further comprising: providing a controller to monitor and vary the temperature of the fibers.

25. (Withdrawn) The method of claim 24 further comprising: monitoring and varying the temperature of said fibers to achieve a uniform cure in the pre providing a pre-preg removably attached to an outer surface of said body; and. resistively heating said fibers by tbe electrica1 power source to cure the pre-preg.

preg.

26. (New) An inflatable heating device having a generally cylindrical body for internal insitu repair of pipe shaped objects comprising:

an elastomeric seamless composite closed body having a generally cylindrical shape formed of at least one layer of a flexible elastomer material having a first inner surface and a second outer surface,

a plurality of nonmetallic, electrically conductive fibers located substantially throughout the length of the cylindrical shaped body between the first inner surface and second outer surface of the flexible elastomer material;

at least one electrically conductive cable port connecting the electrically conductive fibers to an electrical power source; and

at least one air port for inflation and deflation of the closed body.

27. (New) The inflatable heating device of Claim 26 wherein the generally cylindrical body has an outer diameter sized to allow the second outer surface to contact an inner surface of a repair object to transfer electrical resistive heat energy created by the conductive fibers located between the first inner surface layer and second outer surface layer when energized by the electrical power source and the body is inflated.

preg.

26. (New) An inflatable heating device having a generally cylindrical body for internal insitu repair of pipe shaped objects comprising:

an elastomeric seamless composite closed body having a generally cylindrical shape formed of at least one layer of a flexible elastomer material having a first inner surface and a second outer surface,

a plurality of nonmetallic, electrically conductive fibers located substantially throughout the length of the cylindrical shaped body between the first inner surface and second outer surface of the flexible elastomer material;

at least one electrically conductive cable port connecting the electrically conductive fibers to an electrical power source; and

at least one air port for inflation and deflation of the closed body.

27. (New) The inflatable heating device of Claim 26 wherein the generally cylindrical body has an outer diameter sized to allow the second outer surface to contact an inner surface of a repair object to transfer electrical resistive heat energy created by the conductive fibers located between the first inner surface layer and second outer surface layer when energized by the electrical power source and the body is inflated.